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HAYNES BEFFEL & WOLFELD LLP			EXAMINER	
P O BOX 366			BERDICHEVSKY, MIRIAM	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/796,299

Applicant(s)

SHINGLETON ET AL.

Examiner

MIRIAM BERDICHEVSKY

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on amendment 7/14/2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 and 31-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 31-35 is/are rejected.
- 7) ☒ Claim(s) 1, 2, 6, 31 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/808)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Remarks

Claims 1-15 and 31-35 are currently pending.

Status of Objections and Rejections

All rejections from the previous office action are withdrawn in view of Applicant's arguments that the prior art fails to teach a planar array and space between the PV panel and protective panel, however, new grounds of rejection are presented.

Claim Objections

1. Claim 6 is objected to because of the following informalities: To be consistent it is the Examiner's opinion that the word "shading" should be removed from line 1 of claim 6. Appropriate correction is required.
2. Claim 31 is objected to because of the following informalities: It is the Examiner's opinion that the second period at the end of claim 31 should be removed.
3. Claims 1-2 are objected to because of the following informalities: It is the Examiner's opinion that the claims should be consistent and either all follow "said language" or not. Claims 1 and 2 refer to "said modular panels" (claim 1) and "said purlins" (claim 2) while no other claim uses "said language" nor does claim 1 in every instance. It is the Examiner's opinion that "said" in claims 1 and 2 should be changed to "the" or "said" should be incorporated throughout the claims.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-2, 8 and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by McArthur (US 4184476).

As to claim 1, McArthur teaches a modular shade system comprising:

- A support structure defining a first area having a length and a width (Figure 1),
- A planar array of modular panels, having upper and lower surfaces, mounted to and supported by the support structure, the modular panels covering at least about 80% of the first area, the upper surfaces of the modular panels being exposed surfaces (22 and 26, Figure 1),
- The modular panels comprising PV panels (26) and supplemental panels (22) (Figure 1), and
- The supplemental panels being other than PV panels (col. 3, lines 21-30 and lines 34-40).

Regarding claim 2, McArthur teaches the support structure comprising a series of generally parallel purlins (20) supporting the modular panels, beams (18) located beneath the purlins and oriented transversely to the purlins, the purlins secured to and supporting each of the beams (col. 3, lines 8-20, Figure 1).

Regarding claim 8, McArthur teaches protective panels (50) mounted to the shading system subassembly opposite, spaced apart from and covering substantially

the entire lower surfaces of the PV modules, the protective panels comprising at least one of a wire mesh and a sheet of material (Figure 4) (col. 44, lines 42-47).

As to claim 31, a photovoltaic assembly comprising:

- a mounting structure (Figure 1);
- a PV module, having upper and lower surfaces, supported by the mounting structure (Figure 1); and
- a protective panel mounted to at least one of the mounting structure and the PV module opposite, spaced apart from and covering substantially the entire the lower surface of the PV module, the protective panel comprising at least one of a wire mesh and a sheet of material (Figure 4) (col. 44, lines 42-47).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention

was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over McArthur as applied to claim 1.

Applicant is directed to the above paragraphs for complete discussion of McArthur.

Regarding claim 13, McArthur is silent to the PV modules covering at least about 90% of the first area.

It would have been obvious to one of ordinary skill in the art at the time of the invention to increase the number of PV panels in McArthur to at least 90% of the first area to increase the absorption and use of solar energy by the roof.

10. Claims 3- 5, 7 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over McArthur as applied to claim 1, in view of Gauvin (US 6130781).

Applicant is directed to the above paragraphs for complete discussion of McArthur.

Regarding claims 3-5, McArthur teaches the use of conventional sky-light plastic as part of the modular panel construction (col. 3, lines 45-47) but is silent to the supplemental panels comprise light transmissive panels and wherein light transmissive panels cover about 5-30% of the first area.

Further regarding claim 5, McArthur teaches that the supplemental panels are adjacent to one another along a path parallel to the length (22, Figure 1) but is silent to the supplemental panels comprising light transmissive panels.

Gauvin teaches that skylighting is a popular means for introducing natural light into a building (col. 1, lines 27-30).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the skylight of Gauvin as a supplemental panel in McArthur because skylighting introduces natural light into a building, as taught by Gauvin (col. 1, lines 27-30) especially in light of the fact that McArthur teaches use and knowledge of skylighting materials (McArthur: col. 3, lines 45-47). Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use skylights such that they cover 5-30% of the roof as well as placement of the skylights (light transmissive panels) adjacent to one another and along a path parallel to the length in order to adjust the amount of natural lighting entering the building as a matter of obvious design choice.

Regarding claim 7, modified McArthur teaches that the supplemental panels comprise light-transmissive panels and wherein the PV panels and light-transmissive panels cover at least about 90% of the first area (Figure 1).

Regarding claim 14, modified McArthur teaches that the supplemental panels comprise phosphorescent panels to provide passive nighttime illumination beneath support structure.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the phosphorescent light transmissive panels of Gauvin in McArthur because they offer illumination after daylight hours (abstract).

11. Claims 3-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over McArthur as applied to claim 1, in view of Berman (US 4663085 as cited in the IDS).

Applicant is directed to the above paragraphs for complete discussion of McArthur.

As to claims 3-7, McArthur is silent to the supplemental panels comprise light-transmissive panels, cover about 0 to 50% or 5 to 30 % of the first area, are placed adjacent to one another along a path parallel to the length, comprise light transmissive PV panels, and the PV panels are light-transmissive panels cover at least about 90% of the first area.

Berman discloses a light-transmissive solar panel in Figure 1 (transparent photovoltaic panel, 10) which may be used on a roof-top (see Figure 7) to provide transmitted light that is not used for photovoltaic conversion for other purposes such as illuminating the interior of a dwelling (abstract, last sentence). Further, the PV panels of Berman et al. (transparent photovoltaic panel, 10) are light-transmissive PV panels. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the light-transmissive solar panel of Berman et al. to the modular shade system

of Roderick et al. in order to provide light for non-photovoltaic purposes such as illuminating the interior of a dwelling.

Further, one of ordinary skill in the art would use the appropriate fraction of light-transmissive PV panels of Berman to provide the desired level of illumination to the interior of a dwelling. This includes, but is not limited to, using light-transmissive PV panels to cover 0 to 50 % or 5 to 30 % of the first area defined by the support structure of Roderick et al. in the context of claim 1 above. Finally, one of ordinary skill in the art would also place the light-transmissive PV panels of Berman as needed including placing them adjacent to one another along a path parallel to the length or to cover up to 90 % of the first area defined by the support structure of McArthur in the context of claim 1 above again in order to provide the desired level of illumination to the interior of a dwelling.

12. Claims 9, 12, 32 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over McArthur as applied to claims 1 and 31, respectively, in view of Mori (US 6218609).

Applicant is directed to the above paragraphs for complete discussion of McArthur.

Regarding claims 9, 12, 32 and 35, McArthur is silent to the protective panels comprising perforated sheet metal, plastic, perforated plastic, cement board and perforated cement board.

Mori teaches protective panels comprising perforated sheet metal, plastic, perforated plastic, cement board and perforated cement board (col. 1, lines 15-28, and col. 6, line 57 to col. 7, line 6).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the protective perforated sheet of Mori in McArthur because the sheet provides flexibility, strength and an attachment means (col. 1, lines 24-28 and col. 6, line 66 to col. 7, line 6).

13. Claims 10 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over McArthur as applied to claim 8 in view of Berman and Samuelson (US 4692557).

Applicant is directed to the above paragraphs for complete discussion of McArthur.

Regarding claims 10 and 33, McArthur is silent to the PV modules and the protective panels being constructed to permit some light to pass therethrough.

Berman discloses a light-transmissive solar panel in Figure 1 (transparent photovoltaic panel, 10) which may be used on a roof-top (see Figure 7) to provide transmitted light that is not used for photovoltaic conversion for other purposes such as illuminating the interior of a dwelling (abstract, last sentence). Further, the PV panels of Berman et al. (transparent photovoltaic panel, 10) are light-transmissive PV panels. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the light-transmissive solar panel of Berman et al. to the modular shade system of Roderick et al. in order to provide light for non-photovoltaic purposes such as illuminating the interior of a dwelling.

Further, one of ordinary skill in the art would use the appropriate fraction of light-transmissive PV panels of Berman to provide the desired level of illumination to the interior of a dwelling.

Samuelson teaches a light transmissive backing material (a polymer or glass) (col. 11, lines 7-12).

It would have been obvious to one of ordinary skill at the time of the invention to use the transparent module of Berman with protective backing of Samuelson in McArthur to provide the desired level of illumination to the interior of a dwelling while providing a protective layer for the PV module from the interior.

14. Claims 11 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over McArthur as applied to claim 8 and 31, respectively, in view of Nath et al. (US 5,968,287 as cited in the IDS).

Applicant is directed to the above paragraphs for complete discussion of McArthur.

Regarding claims 11 and 34, McArthur is silent to the protective panels having a lower protective panel surface, at least substantially the entire lower protective panel surface.

Nath discloses a photovoltaic (PV) cell module building panels (Figure 1) (co1.1; lines: 6-9) and further discloses an architectural/protective panel (14) that includes a convex central portion onto which a photovoltaic device is to be attached (Figure 1)(since the entire portion is underneath the PV device, this includes the lower portion) which makes the use of (co1.1 ; lines: 59-61), Nath further teaches that the preformed

architectural/protective panels (14) would be advantageous since it utilizes minimal hardware and can be utilized for standing building structures (col. 1, lines: 43-47).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate a convex protective panel as taught by Nath to the PV panels of modified McArthur in order to utilize minimal hardware and can be utilized for standing building structures.

15. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over McArthur as applied to claim 1, in view of McDonough (US 6606823 as cited in the IDS).

Applicant is directed to the above paragraphs for complete discussion of McArthur.

Regarding claim 15, McArthur is silent to the supplemental panels comprising planter panels for planting of plants.

McDonough teaches supplemental panels comprising planter panels for planting of plants (claim 24).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the planter of McDonough in McArthur because they extend the longevity or traditional roofing membranes and manages storm water run off (col. 1, lines 4-10).

Response to Arguments

16. Applicant's arguments, see amendment, filed 7/14/2008, with respect to claim 1 (the prior art reference lacking the planar feature) and claim 31 (the prior art reference

lacking the spaced apart feature) have been fully considered and are persuasive. The rejections of the previous office action have been withdrawn. New grounds of rejection have been presented.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **MIRIAM BERDICHEVSKY** whose telephone number is (571)270-5256. The examiner can normally be reached on M-Th, 7:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on (571) 272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. B./
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/Alexa D. Neckel/

Supervisory Patent Examiner, Art Unit 1795